

2002B130A/2 US  
Response to OA of 3/1/07  
Response Dated 6/1/07

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### REMARKS

Reconsideration is respectfully requested of the above identified application in view of the amendments above and remarks following.

Claims 1-42 are pending in this application. Claims 21-26, 32-35, 41 and 42 have been withdrawn. Claims 1, 2, 13, 16, 19, and 28 - 35 have been amended. Support for the language, "polymerization or oligomerization" is found at page 1 of the specification under "Technical Field"; page 2; page 20, second full paragraph; and the penultimate line, page 23; page 24, line 3; and the examples beginning on page 28. Support for " $B(C_6F_5)_3$  or  $B(C_6H_5)_3$ " in substitution for Lewis Acid is found at page 6 and page 16. The exclusion of binaphthyl previously requested is deleted in the above listing of claims.

### Withdrawal of claims 41 and 42

It is respectfully requested that the Examiner reconsider withdrawal of claims 41 and 42. It is respectfully submitted that these claims fall within the scope of the claims presently before the Examiner. The Examiner suggests that these claims are directed toward a non-elected species. Applicant respectfully disagrees. Claims 41 and 42 fall within the scope of the claims currently being examined and thus present no greater burden to the Examiner and should be examined herewith. Applicant requests claims 41 and 42 be re-instated.

### Objections to Abstract

It is noted with appreciation that the Examiner has withdrawn all rejections to the abstract and claims 1-20, 27, 29-31 and 36-40.

### Rejections Under 35 U.S.C. § 112 Second Paragraph

The undersigned notes with appreciation that the rejections under 35 U.S.C. § 112, second paragraph, have been withdrawn.

### Claim Rejections Under 35 U.S.C. § 102

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Claims 1, 2, 5-8, 11, 12, 15 and 16 have been finally rejected under 35 U.S.C. § 102(b) as being anticipated by Sumi et al. The Examiner suggests that Sumi discloses the invention as claimed when one construes the term "activator" of the present claims broadly.

Claims 1, 2, 5-8, 11, 12 and 14-18 have been finally rejected under 35 U.S.C. § 102(b) as being anticipated by Buchwald. The Examiner suggests that Buchwald discloses the invention as claimed when one construes the term "activator" of the present claims broadly.

Claims 1, 2, 5-8, 11, 12 and 14-18 have been finally rejected under 35 U.S.C. § 102(b) as being anticipated by Zhang. The Examiner suggests that Zhang discloses the invention as claimed when one construes the term "activator" of the present claims broadly.

#### Response to the Examiner's Arguments

The arguments presented in the prior response are incorporated herein by reference.

The Examiner has construed the term "activator" to read on any Lewis Acid. The Examiner maintained that by construing activator broadly the claims are anticipated by each of Sumi, Buchwald and Zhang. As understood from the present final rejection, it is the term "Lewis Acid" that the Examiner construes broadly. The claims as now amended read on very specific Lewis Acids, namely  $B(C_6F_5)_3$  or  $B(C_6H_5)_3$ . Sumi, Buchwald and Zhang do not teach disclose or suggest  $B(C_6F_5)_3$  or  $B(C_6H_5)_3$  as now instantly recited in the claims. It is therefore respectfully submitted that the rejections of claims 1, 2, 5-8, 11, 12 and 14-18 under 35 U.S.C. § 102 (b), over Sumi, Buchwald and Zhang be withdrawn. As an aside, the Examiner does recognize that neither Sumi, Buchwald nor Zhang use alkyl aluminum or alumoxane as a cocatalyst.

In arguing for the anticipation rejections the Examiner has relied upon unsupported conjecture using the word "If." Specifically, the Examiner merely suggests that, "If at least two metals were selected such as iridium and nickel, one complex would read on the catalyst precursor of the instant invention and the other would read on a Lewis Acid activator. It is respectfully submitted that the Examiner has neither

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specifically shown this to be true nor explained why one of ordinary skill in the art would choose this combination. In any event, since the claims no longer recite Lewis Acid broadly but are directed to  $B(C_6F_5)_3$  or  $B(C_6H_5)_3$ , the Examiner's position is now moot. Applicant respectfully requests that the rejection be withdrawn.

The Examiner also argues that biphenyl includes binaphthyl. Applicant respectfully submits that the Examiner errs. Naphthyl and phenyl are two very distinct radicals. The ordinary practitioner in the art would recognize these two radicals as being different one from the other. In fact Buchwald (US 6,307,087) cited by the Examiner recognizes this fact at column 17, line 61 to column 18, line 15 where is clearly refers to biphenyl and binaphthylene as different ring systems. Since Sumi does not disclose or suggest biphenyl it is respectfully submitted that the rejection under 35 U.S.C. § 102 (b) over claim 17 and others directed specifically to biphenyl particularly should be withdrawn.

The Examiner also suggests that by selecting the ligand (1-1) (col. 4, lines 50-55), a binaphthyl and  $[Ru(cod)Cl_2]_n$  one would obtain a structure that directly reads on the claimed invention. This position by the Examiner is at best incomplete and should fail because Sumi does not define "n". The ordinary practitioner would have to guess what value to assign to n. Secondly the ligand (1-1) is a binaphthyl. As discussed above binaphthyl is not the same a biphenyl. More particularly, the Examiner is again picking and choosing through the reference to set forth an argument for anticipation without explaining why one of ordinary skill in the art would choose this combination. There is no specific disclosure in Sumi of such a reaction that would anticipate the instant claims, and more particularly it would be extremely difficult to predict the reaction chemistry from picking items out of col. 4 and col. 17.

Regarding Buchwald and the question of Lewis acids; the claims as now amended do not read broadly on Lewis Acids. Particularly, Buchwald does not read on the particular boron compounds now recited in the claims. It is therefore submitted that Buchwald unequivocally does not anticipate the instant claims.

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The Examiner relies on Col. 25, line 55 carried over to Col. 26, line 50 as a teaching of biphenyl reacting with  $\text{Pd}_2(\text{dba})_3$ . It is respectfully submitted that the chemistries demonstrated at Col. 26 do not relate to the chemistries (reactions) to obtain the claimed catalysts. The Examiner suggests without any evidence that the chelating agents (the biphenyls) will react with the mono-dentate ligands to form compounds. The undersigned respectfully asks exactly what compounds would be formed? In any event, the Examiner is picking totally unrelated portions of the reference to achieve anticipation when in fact no anticipation in the sense of 35 U.S.C. § 102 is present.

It is respectfully submitted that Zhang does not present a compound that contains the metal atoms as recited in the instant claims. The Examiner, as in Buchwald and Sumi, searches throughout Zhang to pick and choose different compounds which he presumes *could* react to form the catalyst precursor. Picking and choosing does not constitute evidence which allows for an anticipation type rejection. It is further respectfully submitted that Zhang does not have substituents on the N Atoms. More critically, please note that in all cases at Cols. 11, 12 and 13 the N atoms are once removed from what Applicants designate as Y and always a part of an aromatic ring. In all instances of the instant claims the N atom is bonded directly to the Y Group as well as the M and the R groups do not form a cyclic structure.

Regarding the Sumi disclosure at Col. 1 lines 6-12; it is submitted that the language carbon-carbon bond formation reads on such a *multitude* of possibilities, that an ordinary practitioner in the art would hardly reach the conclusion that Sumi meant *olefin polymerization*. This is especially so when one considers the entirety of the Sumi disclosure which does not mention or suggest polymerization anywhere.

Furthermore, Applicant notes that claims 3, 4, 9, 10, 13, 19, 20, 27-31 and 36-42 have not been rejected under 35 USC § 102. Claim 9 differs from claim 1 and 2 in that X is specifically defined as "X are independently hydride radicals; hydrocarbyl radicals; substituted hydrocarbyl radicals; or hydrocarbyl organometalloid radicals." Applicant

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has amended this language into independent claims 1 and 2. Applicant also submits this amendment obviates the rejections under 35 USC § 102 of claims 1, 2, 5-8, 11, 12, and 14-18 under 35 USC § 102.

#### Claim Rejections Under 35 U.S.C. § 103 (a)

Claims 1-8, 11, 12, 15, 16 and 40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sumi. The Examiner deems that prepolymerization, the use of a second catalyst, or the use of a support would be obvious.

Claims 1-8, 11, 12, 14-18 and 40 have been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Buchwald. The Examiner deems that prepolymerization, the use of a second catalyst, or the use of a support would be obvious.

Claims 1-8, 11, 12, 14-18 and 40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang. The Examiner deems that prepolymerization, the use of a second catalyst, or the use of a support would be obvious.

Claims 1-20, 27-31 and 36-40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over any of Sumi, Buchwald, or Zhang in view of Yorisue.

#### Response to the Examiners Arguments

Applicant notes that claims 9, 10, 13, 19-20, 27-31, and 36-42 are not rejected under 35 USC § 103 as obvious over Sumi, Buchwald, or Zhang individually. As discussed above Claim 9 differs from claim 1 and 2 in that X is specifically defined as "X are independently hydride radicals; hydrocarbyl radicals; substituted hydrocarbyl radicals; or hydrocarbyl organometalloid radicals." Applicant has amended this language into independent claims 1 and 2. Applicant submits this amendment obviates the rejections under 35 USC § 103 of claims 1-8, 11, 12, 14-18, and 40 as obvious over Sumi, Buchwald, or Zhang individually.

With regard to Sumi, Buchwald, and Zhang individually, the Examiner suggests that prepolymerization, the use of a second catalyst, or the use of a support would be obvious. Applicant disagrees on grounds that it has long been established that catalysis is generally considered unpredictable merely from the chemical nature of the catalyst.

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Corona Co. v. Doan (USSC 1928) 276 US 358, 369. Catalytic effects are not ordinarily predictable with any certainty. In re Doumani et al. (CCPA 1960) 281 F.2d 215, 126 USPQ 408. The effect of a modification of one prior art catalytic process in a manner employed in another prior art process which employs a different catalyst is unpredictable. Ex parte Bergeret al. (POBA 1952) 108 USPQ 236. Nothing within the references or in the Examiners statements provides the reasons for why one would do such and why such would be expected to succeed. Applicant respectfully requests that he rejections be withdrawn. Additionally, to facilitate prosecution, Applicant has amended claim 9 into claims 1 and 2 as discussed above, thus overcoming any rejection.

Claims 1-20, 27-31 and 36-40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over any of Sumi, Buchwald, or Zhang in view of Yorisue (JP-09-255713) (translation attached). This rejection is respectfully traversed. Firstly, the examiner admits that none of Sumi, Buchwald, and Zhang disclose the use of alkyl aluminum or alumoxane compounds as cocatalysts for their catalysts. Secondly, as discussed above, none of the Sumi, Buchwald, and Zhang disclose specific catalysts for olefin oligomerization or polymerization. Sumi, Buchwald, and Zhang discuss hypothetical catalysts for a multitude of uses. Thirdly, even if one would argue that they do disclose catalysts, none of the catalysts contain the abstractable ligands as required in accordance with Applicants' invention. Fourthly, the primary references do not address polymerization catalysts. The needs that are disclosed in the primary references do not require alkyl aluminum or alumoxanes since the hypothetical catalysts are not polymerization catalysts. Thus one of ordinary skill in the art would not think to combine a polymerization activator with these compounds. Further, it is respectfully submitted that Yorisue does not solve any of the deficiencies of the primary references. It is only with the forbidden tool of hindsight (now called ex post reasoning) using Applicant's specification as a map that one would pull polymerization catalyst activators from Yorisue and combine them with hypothetical polymerization catalyst compounds that don't exist. Withdrawal of the rejection is respectfully requested.

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It is respectfully submitted that the claims as now amended are neither anticipated under 35 U.S.C. § 102 nor obvious under 35 USC § 103.

#### Related Application

This application relates to similar subject matter in USSN 10/693,584, filed October 24, 2003. The Examiner is encouraged to review both applications in light of each other.

#### Miscellaneous

Applicant has removed all reference to "excluding binaphthyl" as objected to by the Examiner in the Advisory action. Reconsideration of the application is requested.

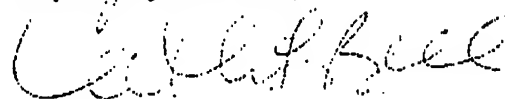
#### CONCLUSIONS

Applicants have made an earnest effort to place their application in proper form and to establish the patentability of their claimed invention over the applied prior art. WHEREFORE, reconsideration of this application, entry of the amendments, withdrawal of the art, rejoinder of the withdrawn claims, and allowance of the amended claims herein are all respectfully requested.

Please charge any deficiency in fees during the entire pendency of this application or credit any overpayments to Deposit Account No. 05-1712.

Any comments or questions concerning the application can be directed to the undersigned at the telephone number given below.

Respectfully submitted,



Catherine L. Bell

Date: June 11, 2007

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